

Shape recovery apparatus, for blow deflection flap driving mechanism etc. - comprises shape memory composite member, Peltier device and heat radiator, providing high corrosion resistance and insulation properties.

Patent Assignee: MITSUBISHI CABLE IND LTD (DAIE)

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Patent Details:

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Abstract (Basic): JP 9109320 A

An apparatus comprises a shape memory composite member (3), a Peltier device (4) and a heat radiator (5). The composite member comprises a shape memory alloy (1) which memorises shape-recovering action, a shape memory polymer (2) which memorises shape-recovering action in a different direction from that of the alloy. The shape-recovery temperature (martensite inverse modification temperature Af) of the alloy is higher than that of the polymer. The temperature at which the (recovery stress multiply sectional area) or the generated force of the alloy is equal to that of the polymer is set between Af and the martensite modification temperature (Mf). Above this temperature the alloy is kept in the memorised shape by the recovery action of the alloy to its memorised shape. At a temperature lower than the above temperature and higher than the Tg of the polymer, the polymer is kept in the memorised shape by the recovery action of the polymer to its memorised shape.

USE - Used for a blow deflection flap driving mechanism in an air conditioner, actuators for driving the bending mechanisms of stomach cameras and industrial endoscopes, valve-exchange actuators in cars and pressure conditioning actuators in coffee makers.

ADVANTAGE - The temperature response is high and bi-directional. The apparatus is compact or small-sized. The recovery action at low temperature is quick. The setting of the recovery temperature can be easily performed. The production is simple. The apparatus has high corrosion resistance and insulation properties.

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Derwent Class: A32; A88; P73

International Patent Class (Main): B32B-015/08

International Patent Class (Additional): B29C-061/00; B29C-061/06;

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Shape memory composites e.g. for endoscopes, temp. display, etc. - comprises shape recovery temp. of shape memory alloy martensite, and